Customer No.: 31561
Application No: 10/605,198
Docket NO.:11422-US-PA

REMARKS

Present Status of the Application

This is a full and timely response to the outstanding non-final Office Action mailed on July 22, 2004. The Office Action has objected to the title of the invention and claim s 7 to 10 because of informalities. The Office Action has also rejected claim 3 under 35 U.S.C. 112, second paragraph as being indefinite and under 35 U.S.C. 103(a) as being unpatentable over Shin (USP 6,476,440) in view of Manley (USP 5,284,784).

Claims 1-10 remain pending of which claims 1, 3, 6-10 a have been amended to correct editorial errors and to more accurately describe the invention. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

After carefully considering the remarks set forth in this Office Action and the cited references, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the presently pending claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

Discussion of Office Action Objections

(A) Priority Objection

The Office Action indicated that Applicant has not filed a certified copy of the Taiwanese application as required by 35 U.S.C. 119(b).

Applicant respectfully submits to the Office that although a corresponding Taiwanese application of the instant application has been filed, a priority of which has not been claimed. A submission of a certified copy of the Taiwanese application is thus deemed unnecessary.

(B) Title of the Invention

The Office Action has objected to the title of the invention for being not descriptive.

In response thereto, Applicant has amended the title that is clearly indicative of the invention to which the claims are directed. Reconsideration of the objection is respectfully requested.

(C) Claims Objections

The Office Action has objected to claims 7 to 10 because of informalities and claim 3 for insufficient antecedent bas of the limitation 'the erase gate' in line 2 in the claim.

Applicant would like to thank the Examiner for pointing out the informalities. In this regard, Applicant respectfully submits the aforementioned amendment to claims 3 and 7-10 to properly address and overcome the objections. Withdrawal of the objections is earnestly requested.

Discussion of Office Action Rejections

(A) The Office Action rejected claim 3 under 35 U.S.C. 112, 2nd paragraph.

Specifically, the Office Action rejected claim 3 for it is unclear to which 'gate dielectric layer ' the claim is referring. In response thereto, Applicants have amended claim 1 to recite the gate dielectric layer of the selective gate structure being a first gate dielectric layer, and the gate dielectric layer disposed between the floating gate and the control gate being a second gate dielectric layer. Accordingly, claim 3 has been amended to read that the second gate dielectric layer is further disposed between the erase gate and the floating gate. Applicant believes the aforementioned amendments have properly address and overcome the rejection and respectfully request that the section 112 rejection be withdrawn.

(B) The Office Action rejected claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over Shin (USP 6,476,440) and Manley (USP 5,284,784).

The PTO can satisfy its burden of establishing a prima facie case of obviousness only by showing the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Further, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. See M.P.E.P. § 2143, 8th., February 2003. "Moreover, the question is not simply whether the prior art 'teaches' the particular element of the invention, but whether it would' 'suggest the desirability, and thus the obvious of making the

combination.'" ALCO Standard Corp. v. Tennessee Valley Authority, 808 F.2d 1490, 1498, 1 U.S.P.Q. 2d 1337, 1343 (Fed. Cir. 1986).

Applicant respectfully disagrees with the Office's assertion that Shin shows most aspects of the instant invention because Applicant believes Shin is legally deficient for the purpose of rendering claim 1 unpatentable.

The present invention teaches, among other things, 'a selective gate structure, disposed on the substrate, wherein the selective gate structure comprises, sequentially from the substrate, a first gate dielectric layer, a selective gate and a cap layer; .. .. ..; an interlayer dielectric layer, disposed on the substrate, wherein the interlayer dielectric layer comprises an opening, disposed on one side of the selective gate structure, exposing a portion of the selective gate structure, the substrate and the device isolation structure; a floating gate, disposed in the opening, wherein a portion of the floating gate extends to cover a surface of the interlayer dielectric layer; .. .. ..; a first control gate and a second control gate, wherein the first and the second control gates are disposed in the first opening and the second opening, respectively, the first and the second control gates fill the first opening and the second opening, respectively, ...; .. ..'

The Office relies on both the prior art disclosed by Shin and Shin's invention to teach the instant case. However, the prior art disclosed by Shin and Shin's invention teach away from each other. The prior art disclosed by Shin is directed to a conventional nonvolatile memory device, wherein a floating gate 16 is first formed. A control gate 17 is

then formed over the floating gate 16, followed by forming an erase gate 20 over both the control gate 17 and the floating gate 16 (Fig. 1). Shin's invention, on the other hand, teaches forming an erase gate 35a over a selection gate 33a first. A floating gate 39 is then formed covering partially the erase gate 35a, followed by forming a control gate 42 over both the floating gate 39 and the erase gate 35a. Shin specifically teaches forming the erase gate and the selection gate simultaneously for reducing cell size, whereas the erase gate in the prior art disclosed by Shin is formed independently. Therefore, a motivation to combine the prior art disclosed by Shin and Shin's invention is lacking.

In addition, Shin also at least fails to teach an interlayer dielectric, disposed on the substrate, wherein the interlayer dielectric layer comprising an opening, disposed on one side of the selective gate structure, exposing a portion of the selective gate structure, the substrate and the device isolation structure. The oxide layer 13 as construed by the Office as being equivalent to the interlayer dielectric of this invention exposes no selection gate (Fig. 1). As a matter of fact, Shin's prior art is completely silent about forming a selection gate. Further, the control gate of the present invention fills the opening in the interlayer dielectric layer, whereas, it is the floating gate 15 of Shin that fills the gap between the oxide layer 13. Last but not least, the memory device of Shin is a four-layer polysilicon structure (33a, 35a, 39 and 42), while the memory device of the present invention is a three-layer polysilicon structure (132, 110, 114+116).

Although the Office recognizes that Shin fails to teach a device isolation structure, the Office relies on Manley to teach the missing features. However, similar to Shin, Manley fails to teach or suggest at least the claimed features of the invention discussed above.

For at least these reasons, the references, taken alone or combined, fail to teach or suggest each and every element recited in the claims and the motivation to combine Shin and Manley is also inadequate. Applicant respectfully submits that all rejections have been rendered moot and/or accommodated and that the now pending claim 1 is in condition for allowance. Since claims 2-10 are dependent claims which further define the invention recited in claim 1, respectively, Applicants respectfully assert that these claims also are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectively requested.

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CONCLUSION

For at least the foregoing reasons, it is believed that the presently pending claims 1-10 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date : Nov. 15, 2004

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